NTIA Report 85-187

Monitoring of Harmful Interference to the HF Broadcasting Service: I. Results of the October 1984 and March/April 1985 Coordinated Monitoring Periods

Mary W. Sowers
Gregory R. Hand
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U.S. DEPARTMENT OF COMMERCE ● National Telecommunications and Information Administration

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U.S. DEPARTMENT OF COMMERCE
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MONITORING OF HARMFUL INTERFERENCE TO THE HF BROADCASTING SERVICE: I. RESULTS OF THE OCTOBER 1984 AND MARCH/APRIL 1985 COORDINATED MONITORING PERIODS

Mary W. Sowers, Gregory R. Hand, and Charles M. Rush*

The results of a detailed investigation to isolate the location of sources of intentional interference to the HF broadcasting service are presented. The investigation was conducted using observations of intentional harmful interference observed at numerous locations around the world during international coordinated monitoring periods operated under the auspices of the International Frequency Registration Board--a permanent organ of the International Telecommunication Union. The types of data used, the methods of analysis employed, and the results obtained are given. In addition to the location of emitters that are the sources of intentional harmful interference to the HF broadcast service, statistics of the occurrence of intentional interference to the HF broadcast service, and statistics of the occurrence of intentional interference directed against specific broadcast operations and languages during the monitoring periods are presented.

Key Words: direction finding; harmful interference; HF broadcasting; HF jamming; HF propagation

1. INTRODUCTION

The high frequency (HF) portion of the radio spectrum--3 to 30 MHz--is used to provide various types of telecommunication services throughout the world. It is used extensively to provide broadcasting services on both national and international scales. The national broadcasting service is geared toward an audience that is located within the same political boundaries as the broadcast facility. The international broadcasting service is directed at an audience comprised of listener communities that are located outside the political boundaries of the broadcast facility that is providing the service. Both the national and international high frequency broadcast services are considered equal within the rules and regulations governing the activities of the International Telecommunication Union (ITU).

High frequency broadcast services rely upon the reflection of radio waves from the ionosphere. This sky-wave reflection enables programming to be supplied in a cost-effective manner to audiences in large areas that are long distances

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Table 11. Summary of the Specific Broadcasters and Languages that Were Observed to be Jammed During the Monitoring Periods

BROADCASTER	LANGUAGE	OCTOBER 1984 A*	OCTOBER 1984 B**	MARCH/APRIL 1985 A*	MARCH/APRIL 1985 B**
BRITISH BROADCASTING CORPORATION	RUSSIAN	94	63	112	69
	POLISH	94	21	112	24
	ARABIC	94	0	112	30
	TURKISH	94	3	112	7
	BULGARIAN	94	7	112	0
	GREEK	94	4	112	1
	SERBO-CROATIAN	94	5	112	0
	PORTUGUESE	94	1	112	1
	ROMANIAN	94	1	112	1
	SLOVAK	94	2	112	0
	FINNISH	94	1	112	0
	FRENCH	94	1	112	0
	GERMAN	94	1	112	0
	HUNGARIAN	94	1	112	0
	SLOVENE	94	1	112	0
DEUTSCHE WELLE	RUSSIAN			65	39
	BULGARIAN			65	11
	CZECHOSLOVAKIAN			65	7
	PASHTO			65	7
	DARI			65	1
KOL ISRAEL	RUSSIAN			28	19
	BULGARIAN			28	1
	YIDDISH			28	3
	GEORGIAN			28	3
	HEBREW			28	2
RADIO FREE EUROPE	POLISH	395	205	334	179
	CZECHOSLOVAKIAN	395	144	334	126
	BULGARIAN	395	37	334	30
	LITHUANIAN	395	34	334	21
	LATVIAN	395	13	334	19
	ESTONIAN	395	19	334	17
	HUNGARIAN	395	65	334	24
	PORTUGUESE	395	2	334	2
	ROMANIAN	395	15	334	2

*A - Maximum Time Blocks Broadcaster Active with Specified Language
**B - Number of Times Jamming Detected on Specified Language

Table 11. Summary of the Specific Broadcasters and Languagaes that Were Observed to be Jammed During the Monitoring Periods (Continued)

BROADCASTER	LANGUAGE	OCTOBER 1984		MARCH/APRIL 1985	
		A*	B**	A*	B**
RADIO LIBERTY	RUSSIAN	461	397	607	523
	UKRAINIAN	461	68	607	124
	TURKESTANI	461	57	607	64
	BELORUSSIAN	461	19	607	37
	AZERBAIJANI	461	22	607	29
	ARMENIAN	461	21	607	19
	TATAR-BASHKIR	461	12	607	18
	GEORGIAN	461	20	607	18
	CENTRAL ASIAN	461	0	607	13
VOICE OF AMERICA	RUSSIAN	251	173	312	216
	POLISH	251	57	312	53
	PASHTO	251	0	312	17
	LATVIAN	251	8	312	7
	UKRAINIAN	251	30	312	30
	ARMENIAN	251	6	312	12
	GEORGIAN	251	5	312	6
	DARI	251	0	312	14
	ESTONIAN	251	7	312	7
	UZBEK	251	3	312	8
	AZERBAIJANI	251	0	312	1
	LITHUANIAN	251	6	312	2

*A - Maximum Time Blocks Broadcaster Active with Specified Language
**B - Number of Times Jamming Detected on Specified Language

Table 12. Summary of the Specific Broadcasters and Languages that Were Observed to be Jammed During the First 5 Minutes of Each Half-hour Period for the March/April 1985 Monitoring Activity

BROADCASTER	LANGUAGE	A*	B*
BRITISH BROADCASTING CORPORATION	RUSSIAN	33	45
	POLISH	21	27
	ARABIC	18	36
	TURKISH	1	1
DEUTSCHE WELLE	RUSSIAN	23	25
	BULGARIAN	10	11
	CZECHOSLOVAKIAN	9	11
	PASHTO	6	8
	DARI	3	4
KOL ISRAEL	RUSSIAN	9	19
	BULGARIAN	1	2
	YIDDISH	3	4
	HEBREW	0	1
RADIO FREE EUROPE	POLISH	86	93
	CZECHOSLOVAKIAN	32	52
	BULGARIAN	15	23
	LITHUANIAN	6	6
	LATVIAN	8	8
	ESTONIAN	8	9
	HUNGARIAN	3	3
	PORTUGUESE	1	1
	ROMANIAN	1	2
RADIO LIBERTY	RUSSIAN	264	301
	UKRAINIAN	24	24
	TURKESTANI	17	19
	BELORUSSIAN	12	12
	AZERBAIJANI	11	11
	ARMENIAN	7	8
	TATAR-BASHKIR	7	7
	GEORGIAN	6	6
	CENTRAL ASIAN	6	6
VOICE OF AMERICA	RUSSIAN	83	85
	POLISH	25	27
	PASHTO	11	16
	LATVIAN	10	11
	UKRAINIAN	7	11
	ARMENIAN	6	10
	GEORGIAN	5	6
	DARI	4	11
	ESTONIAN	4	4
	UZBEK	2	5
	AZERBAIJANI	2	3
	LITHUANIAN	2	2

*A - Number of times jamming detected on specified language

**B - Maximum 5-minute time blocks broadcaster active with specified language

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15. ABSTRACT *(A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.)*

The results of a detailed investigation to isolate the location of sources of intentional interference to the HF broadcasting service are presented. The investigation was conducted using observations of intentional harmful interference observed at numerous locations around the world during international coordinated monitoring periods operated under the auspices of the International Frequency Registration Board--a permanent organ of the International Telecommunication Union. The types of data used, the methods of analysis employed, and the results obtained are given. In addition to the location of emitters that are the sources of intentional harmful interference to the HF broadcast service, statistics of the occurrence of intentional interference to the HF broadcast service, and statistics of the occurrence of intentional interference directed against specific broadcast operations and languages during the monitoring periods are presented.

16. Key Words *(Alphabetical order, separated by semicolons)*

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